

WE CLAIM:

1. A process for the offset printing of a receiving medium with a functional pattern comprising in any order the steps of:
 - 5 applying a printing ink to a printing plate and wetting said printing plate with an aqueous fountain medium containing a solution or a dispersion containing at least one moiety having at least colouring, pH-indicating, whitening, fluorescent, phosphorescent, X-ray phosphor or conductive properties.
 - 10 2. Process according to claim 1, wherein said moiety having at least colouring, whitening, fluorescent, phosphorescent, X-ray phosphor or conductive properties is an intrinsically conductive polymer.
 - 15 3. Process according to claim 2, wherein said intrinsically conductive polymer is selected from the group consisting of polyanilines, polyaniline derivatives, polypyrroles, polypyrrole derivatives, polythiophenes and polythiophene derivatives.
 - 20 4. Process according to claim 2, wherein said conductive polymer is a polymer or copolymer of a 3,4-dialkoxythiophene in which the two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.
 - 25 5. Process according to claim 2, wherein said intrinsically conductive polymer is selected from the group consisting of: homopolymers of (3,4-methylenedioxy-thiophene), (3,4-methylenedioxythiophene) derivatives, (3,4-ethylenedioxythiophene), (3,4-ethylenedioxythiophene) derivatives, (3,4-propylenedioxythiophene), (3,4-propylenedioxythiophene) derivatives, (3,4-butylenedioxythiophene) and (3,4-butylenedioxythiophene) derivatives and copolymers thereof.
 - 35 6. Process according to claim 1, wherein said aqueous fountain medium further contains a polyanion.
 7. Process according to claim 6, wherein said polyanion is poly(styrenesulfonate).

8. Process according to claim 1, wherein said aqueous fountain medium further contains a di- or polyhydroxy- and/or carboxy groups or amide or lactam group containing organic compound.
9. Process according to claim 8, wherein said di- or polyhydroxy- and/or carboxy groups or amide or lactam group containing organic compound is selected from the group consisting of 1,2-propandiol, propylene glycol, diethylene glycol, N-methyl pyrrolidinone and di(ethylene glycol)ethyl ether acetate.
10. Process according to claim 8, wherein said process further contains a step subsequent to printing in which said receiving medium within 10 minutes of printing is heated to a temperature of 100 to 250°C.
11. Process according to claim 1, wherein said aqueous fountain medium further contains an aprotic organic compound with a dielectric constant ≥ 15 .
12. Process according to claim 11, wherein said process further contains a step subsequent to printing in which said receiving medium within 10 minutes of printing is heated to a temperature of $\leq 150^{\circ}\text{C}$.
13. Process according to claim 1, wherein said aqueous fountain medium further contains a non-ionic or anionic surfactant.
14. Process according to claim 1, wherein said aqueous fountain medium has a viscosity at 25°C after stirring to constant viscosity of 30 mPa.s as measured according to DIN 53211.
15. Process according to claim 1, wherein said aqueous fountain medium contains a dye and/or a pigment such that the colour tone of the ink and the background cannot be distinguished by the human eye.
16. Process according to claim 1, wherein said printing ink contains a dye and/or a pigment such that the colour tone of the ink and the background cannot be distinguished by the human eye.